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MOTOROLA INC.

Cellular Infrastructure Group

Motorola Confidential Proprietary

DISCLOSURE FOR PATENT COMMITTEE

SUBMITTED PURSUANT TO EMPLOYMENT AGREEMENT

FOR INSTRUCTIONS FOR COMPLETION REFER TO DISCLOSURE INSTRUCTION PROCEDURE

Inventor(s) will not fill in

Operatio REDACTED

DISCLOSURE NO. CEC8262R DATE REDACTED

Patent Committee Action

Inventor(s) Name(s) ~~A~~ Kinnavy, Michael

Inventor must fill in Items 1 thru 13. Items 2 to 5 may require extra sheets.
BE SURE that all attachments are signed and dated by both the inventor(s) and witnesses.

1. Name of the invention. (Limit to ten word.)
   Method and apparatus for mobile station (MS) requested slotted mode operation
2. State the problem(s) solved by the invention.
   The system sets the maximum slot cycle index(SCI), this invention allows the MS to use a higher SCI
3. Describe the invention, including its operation, purpose and environment. (Use separate sheets as required).
   See attached sheets.
4. List the closest known technology (attach article, patent, catalog sheet or other documentation).
   None known.
5. Improvement(s) over known technology.
   Higher SCI translates to longer battery life. This allows the user, not the system to select the SCI
6. What new elements (e.g. components, circuits, process steps) or combination of known elements or software algorithm produced the improvement?
   See attached sheets
7. What are the potential applications for use of this invention?
   Any system which employs slotted mode paging.
8. Conception date? REDACTED Attach earliest log sheets, drawings, etc., to support dates).
9. To whom did you first disclose this invention? Name: Greg Wheeler Date: REDACTED
10. Date the device was first built and tested. not yet built
    Present location of the device?

DETERMINATION OF LEGAL INVENTORSHIP WILL BE BY THE PATENT DEPARTMENT.

Inventor's signature (IMPORTANT -- YOU MUST USE YOUR FULL NAME) -- NO INITIALS

11. Inventor's Full Name: (Type) Michael J. Kinnavy — Signature: Michael J. Kinnavy — Date: REDACTED — Social Security No.: REDACTED

Home Address: Street: 6615 W. Imlay — City: Chicago — State: IL — Country: U.S.A. — Zip Code: 60631

Citizen of (i.e. U.S., Germany, etc.): U.S. — Dept. No.: REDACTED — Phone — Room No.: IL75 2E5 — Employee Status: ☐ Permanent ☐ Contractor

Inventor's Immediate Supervisor: Ed Jen — Dept. No.: REDACTED — Phone — Social Security No.: REDACTED

12. Inventor's Full Name: (Type) | Signature | Date | Social Security No.

Home Address: Street | City | State | Country | Zip Code

Citizen of (i.e. U.S., Germany, etc.) | Dept. No. | Phone | Room No. | Employee Status ☐ Permanent ☐ Contractor

Inventor's Immediate Supervisor | Dept. No. | Phone | Social Security No.

13. Inventor's Full Name: (Type) | Signature | Date | Social Security No.

Home Address: Street | City | State | Country | Zip Code

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Inventor's Immediate Supervisor | Dept. No. | Phone | Social Security No.

Witness signatures (TWO WITNESSES ARE REQUIRED). Witness must sign and date this form and all attachments.
THE WITNESSES IN SIGNING THIS FORM ATTEST TO THE FACT THAT THEY UNDERSTAND THE INVENTION.

14. Witness Name: (Type) Chad Bohlmann Signature [signature] Date REDACTED

15. Witness Name: (Type) Hong Bounpaseuth Signature [signature] Date REDACTED

Items 16 thru 24 are to be filled in by the ENGINEERING/PRODUCT MANAGER or above.
THE MANAGER IN SIGNING THIS FORM ATTESTS TO THE FACT THAT HE UNDERSTANDS THE INVENTION.

16. What product will this invention be used in? (No code names -- use brief description if necessary)
Systems which employ slotted mode paging.

17. When (was) (will) the first offer for sale of a product incorporating this invention (be) made?
Date: TBD

18. When is the estimated shipping date? REDACTED

19. When (was) (will) the first disclosure outside of Motorola (be) made? How and to whom? Nondisclosure agreement signed? State title and date of publication, if any.
Has not been disclosed outside of Motorola.

20. What is the market for products incorporating this invention? Be specific and quantitative.
All cellular/paging operators would be interested in this invention. It provides increased battery life to the system end users (i.e. subscribers)

21. Who are the potential competitors? What is the possibility this invention will be used by competitors? Which ones?
REDACTED — REDACTED

22. Did this invention result from work on a development Contract? (YES) (NO) Contract No. No
Who was the contracting party?

23. Discuss the business impact that this invention will have on Motorola. Be specific and quantitative.
Motorola would be able to market this as a software feature. The numbers involved would need to go through the pricing division.

24. Manager's Name (Type) Ed Jen | Signature [signature] | Date | Dept. No. REDACTED | Phone

Disclosure for Patent Committee

1. Name of the invention

Method and apparatus for efficient/user definable slotted mode operation.

2. State the problem(s) solved by the invention

In today's CDMA cellular systems, the mobile's slot cycle index is determined by the infrastructure equipment. In IS95x the base station broadcasts the max slot cycle which the mobile can use. Current systems broadcast a low slot cycle index to assure short call setup times but at a cost of the mobile's battery life. The mobile uses the minimum of the broadcasted value and an internal preferred value. In an ideal world, we could set the max slot cycle index to the highest value and allow the mobile to use it's internal slot cycle index. The problem with this is that the system operator loses control over call setup times for all mobiles. The system operator is at the mercy of the mobile manufacturer.

If the mobile was able to use a value greater than the max slot cycle index and the base station supported it. Mobiles or users could determine what their slot cycle should be based off of battery life and applications. Also any legacy mobiles or mobiles not implementing an intelligent internal preferred value would not be impacted.

3. Describe the invention, including its operation, purpose and environment.

The invention is to use a reserved bit in the current IS95x standard which would signal to the MS whether a slot cycle index greater than the max slot cycle index is supported. A software scheduling algorithm would support slots numbering up to 2048 (corresponds to the largest slot cycle index). The mobile would then notify the infrastructure that it will be using a slot cycle greater

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than the max slot cycle index. The infrastructure would then schedule pages according to the mobile's preferred slot cycle index.

4. List the closest known technology (attach article, patent, catalog sheet or other documentation).

The current slot cycle index implementation. Refer to IS95 A

5. Improvement(s) over known technology.

1) Allows mobiles/users to determine their slot cycle while at the same time allowing system operators to govern call setup times. An example application is that the mobile could determine that it's battery is running low and switch to a greater slot cycle index (This may be a patent in itself). Another application is a user may want to be able to rx pages but does not want to run their battery down. They would set their mobile to a low power consumption mode, i.e. set their preferred internal value higher.

6. What new elements (e.g. components, circuits, process steps) or combination of known elements or software algorithm produced the improvement?

The combination of slotted mode paging operation combined with overhead messaging information and the software support for the various slot cycle indices results in a new mode of operation for the mobile.

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Inventor [redacted] Date [redacted] Witness [redacted] Date REDACTED